Department of Mathematics
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Course	**Course Name**	**: Data Mining**
	Course Code	**: KM184725**
	Credit	**: 2**
	Semester	**: 7**

Description of Course
The increasing use of information technology and systems caused the volume of data increase very rapidly. Data mining provides methods and tools to utilize data through the discovery of hidden, interesting, and useful patterns of knowledge from the data. Topics include basic data mining concepts, preprocessing data, classification, clustering, associations, sequence patterns, math applications for data mining, data mining applications: web mining, spatial data mining and so on. Lecture methods include classroom tutorials and discussions. In addition, to train the student's ability in cooperation and communication, will be given a project in the form of problem solving with existing tools in data mining. This project will be completed in groups and given in the end of the lecture. Assessment methods include written evaluation and assessment of the process and documentation of the results of the analysis, design and modeling, and how to present them.

Learning Outcome	
PLO 2	[C3] Students are able to solve simple and practical problems by applying basic mathematical statements, methods and computations
PLO 3	[C4] Students are able to analyze simple and practical problems in at least one field of analysis, algebra, modeling, system optimizations and computing sciences
PLO 4	[C5] Students are able to work on a simple and clearly defined scientific task and explain the results, both written and verbally either

	on the area of pure mathematics or applied mathematics or computing sciences

Course Learning Outcome

1. Students are able to apply mathematical and computational thinking that based on pattern recognition algorithms to support the development of software and intelligent systems.
2. Students are able to solve and provide alternatively solutions in the problem of pattern discovery in large-scale data with data mining algorithm approaches either independently or in teamwork
3. Students are able to explain the concepts of data mining which include KDD process, task in data mining (classification, clustering, association, sequence), and its application

Main Subject

Data Mining concepts, big data, data preprocessing, data mining task: association rule, classification, clustering, sequence pattern, mathematical tools for data mining, application of data mining: web mining, spatial data mining, case study.

Prerequisites

Database Systems

Reference

1. Jiawei Han, Micheline Kamber, Jian Pei, Data Mining: Concepts and Techniques, Third Edition, Morgan Kaufmann Publisher, 2012

Supporting Reference

1. Pang Ning Tan, Michael Steinbach, dan Vipin Kumar, Introduction to Data Mining, Addison Wesley, 2006